

Abstract Submitted  
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**Identification of weak-turbulent wave-number region in stratified turbulence**<sup>1</sup> NAOTO YOKOYAMA, Kyoto University, MASANORI TAKAOKA, Doshisha University — The anisotropic gravity-wave turbulence at small wave numbers and the isotropic Kolmogorov turbulence at large wave numbers coexist in stratified turbulence. The Ozmidov wave number, at which the linear time scale and the nonlinear time scale are comparable, has been considered as the wave number that separates the weak and strong turbulence. Here, the linear time scale and the nonlinear time scale are respectively the inverse of the Brunt-Väisälä frequency and the eddy-turnover time. However, the Ozmidov wave number does not reflect the effect of anisotropy in the weak turbulence. It was numerically found that the wave kinetic energy is dominant in the total kinetic energy over the vortical energy, the wave kinetic energy is close to the potential energy, and the polarization anisotropy part is dominant in the vertical kinetic energy at the wave numbers where the ratio of the linear time scale to the nonlinear time scale is smaller than 1/3. Namely, the anisotropic gravity-wave turbulence is dominant at the wave numbers where the ratio is smaller than 1/3. Such wave-turbulence region is encompassed by the Ozmidov wave number. These facts are consistent with the critical balance.

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